

## WHAT IS CLAIMED IS:

1. A piezo-film speaker comprising:  
 a flat piezo-film curvedly supported to form at least one curved portion, said flat piezo-film having at least a radius (R) of curvature at each curved portion is in a range of  $R \geq 200$  mm or an area (S) of a principal surface of said piezo-film is in a range of  $S \geq 40$  cm<sup>2</sup>.

2. The piezo-film speaker according to claim 1, wherein said flat piezo-film includes the characteristics of a radius (R) of curvature at each curved portion is in a range of  $210\text{mm} \leq R \leq 360$  mm.

3. The piezo-film speaker according to claim 1, wherein said flat piezo-film includes an area S of a principal surface of said piezo-film is in a range of  $40\text{ cm}^2 \leq S \leq 100\text{ cm}^2$ .

4. The piezo-film speaker according to claim 1, wherein said flat piezo-film includes a radius (R) of curvature at each curved portion is in a range of  $210\text{mm} \leq R \leq 360$  mm and an area (S) of a principal surface of said piezo-film is in a range of  $40\text{ cm}^2 \leq S \leq 100\text{ cm}^2$ .

5. The piezo-film speaker according to claim 2, wherein said piezo-film speaker has a film thickness (t) of 110  $\mu\text{m}$ .

Sub B2  
6. The piezo-film speaker according to claim 3, wherein said piezo-film speaker has a film thickness (t) of 28  $\mu\text{m}$ .

Sub A2  
7. A motorcycle helmet including a hard, thin helmet shell, said helmet comprising:  
a piezo-film speaker built into said helmet, wherein said piezo-film speaker includes a flat piezo-film curvedly supported to form at least one curved portion, said flat piezo-film having at least a radius (R) of curvature at each curved portion is in a range of  $R \geq 200 \text{ mm}$  or an area (S) of a principal surface of said piezo-film is in a range of  $S \geq 40 \text{ cm}^2$ .

Sub B2  
8. The motorcycle helmet according to claim 7, wherein said flat piezo-film has a radius (R) of curvature at each curved portion in a range of  $210 \text{ mm} \leq R \leq 360 \text{ mm}$  and an area S of a principal surface of said piezo-film in a range of  $40 \text{ cm}^2 \leq S \leq 100 \text{ cm}^2$ .

9. The motorcycle helmet according to claim 7, wherein said flat piezo-film has a radius (R) of curvature at each curved portion is in a range of  $210 \text{ mm} \leq R \leq 360 \text{ mm}$ .

Sub A2  
10. The motorcycle helmet according to claim 7, wherein said flat piezo-film has an area S of a principal surface of said piezo-film is in a range of  $40 \text{ cm}^2 \leq S \leq 100 \text{ cm}^2$ .

11. The motorcycle helmet according to claim 2, wherein said piezo-film speaker has a film thickness (t) of 110  $\mu\text{m}$ .

12. The motorcycle helmet according to claim 3, wherein said piezo-film speaker has a film thickness (t) of 28  $\mu\text{m}$ .

13. The motorcycle helmet according to claim 7, wherein said helmet further comprises:

a head liner fixed on an inner surface of said helmet shell;

a head inner removably and dividedly mounted so as to cover the head liner;

ear inners and a chin inner removably and dividedly mounted with respective liners on the inner surface of said helmet shell;

14. The motorcycle helmet according to claim 13, wherein said helmet further comprises a plurality of said flat piezo-film speakers, each speaker mounted to said inner surface of said helmet shell.